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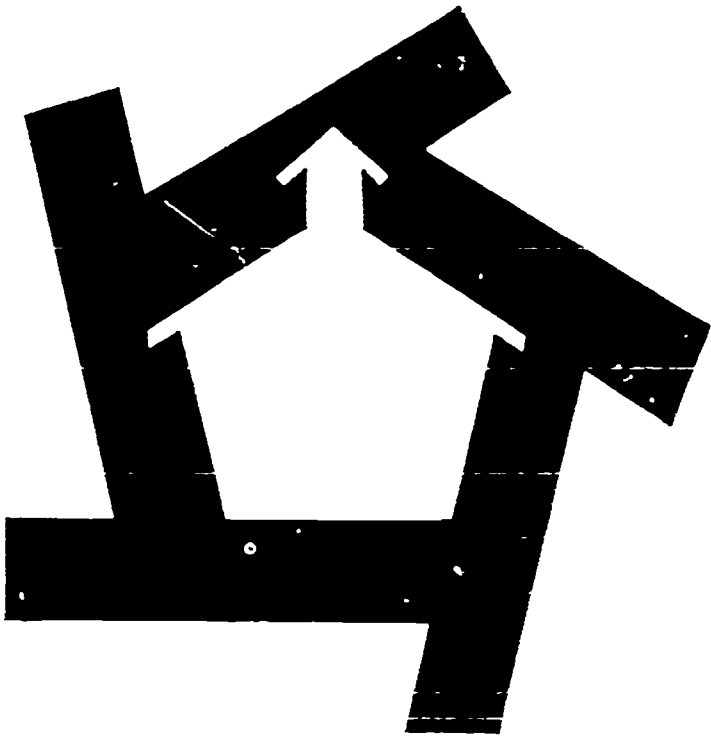
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ABSTRACT

Information, instructions and worksheets are provided for use in computing the functional capacity of an elementary, middle or secondary school building. The functional capacity is the number of pupils that can adequately be housed in a school building without overcrowding. (FS)

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SCHOOL CAPACITY



EDUCATIONAL FACILITY SERIES

A GUIDE TO PLANNING

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATE OF NEW JERSEY
DEPARTMENT OF EDUCATION
BUREAU OF SCHOOL PLANNING SERVICES
TRENTON NEW JERSEY

003 755

A completed copy of the appropriate capacity worksheets should be attached to each application for approval of final plans and specifications.

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SCHOOL CAPACITY

Prepared by
Bureau of School Planning Services
Department of Education
Trenton, New Jersey



1969

INTRODUCTION

This bulletin contains information, instructions and worksheets designed to assist school districts, planners and architects in computing the capacity of a school building. It is important that the proper worksheet and computational formulae are used. The net result of the worksheet will be a "functional capacity" for the building. The functional capacity is the number of pupils that can adequately be housed in a school building without overcrowding. Once the building population exceeds the functional capacity, there is a need for additional facilities.

In planning the central facilities and site, consideration should be given to the ultimate size of the building including all future additions.

Before proceeding to the worksheets, the following section on GENERAL INSTRUCTIONS should be read carefully, particularly the section(s) appropriate to the grade levels anticipated. Any questions should be referred to the Bureau of School Planning Services consultancy staff; call 609 - 292-4404.

GENERAL INSTRUCTIONS FOR CALCULATING SCHOOL CAPACITIES

1. The term "maximum anticipated enrollment" is meant to include not only the present capacity but also the ultimate capacity, with all planned additions to the building.
2. Each pupil station figure is based on the minimum acceptable area for the particular type of instructional program. If the square footage provided is less than the minimum acceptable area, then the number of pupil stations should be reduced by one for each unit area below the minimum.

Example. The minimum acceptable area for an academic classroom in a middle school is 700 square feet. If the classroom provided is 650 square feet the calculations for that room would be as follows:

The unit area is 700 square feet divided by 25 pupils, or 28 square feet per pupil station.

700 minus 650 = 50 square feet.

50 divided by 28 = 1.8 or 2 pupil stations.

Therefore, the number of pupil stations to be assigned to a 650 square foot academic classroom in a middle school is 25 minus 2, or 23 pupil stations.

3. The number of pupil stations indicated in column VI on all worksheets is considered maximum and is not increased by adding square footage, unless additional instructional staff is provided.
4. The Special Education and Vocational Laboratories Worksheets are informational only. Information from these worksheets must be transferred to the worksheet appropriate to the grade levels involved.
5. In open space plans, the number of pupil stations is calculated by dividing the open instructional area by 40 square feet and adding the appropriate number of pupil stations in other specialized areas that are provided. The functional capacity is computed by applying the appropriate utilization factor.

Elementary School -- Non-departmentalized:

1. A "non-departmentalized elementary school" is defined as a school containing any combination of grades K through 8 in which the pupils spend the majority of the instructional day with one teacher.
2. Complete the form for the Non-departmentalized Elementary School, filling in all areas appropriate to the local program.
3. All minimum acceptable gross areas listed are for a school with a functional capacity not exceeding 500.
4. Complete the ANCILLARY AREAS sheet for areas which have no pupil capacity.

Elementary School -- Departmentalized:

1. A "departmentalized elementary school" is defined as a school containing any combination of grades K through 8 in which some of the grades may be non-departmentalized but in some grades a portion (or all) of the program requires that pupils move from teacher to teacher during the instructional day.
2. For the non-departmentalized grades, complete the form for the Non-departmentalized Elementary School. For the departmentalized grades, complete the form for the Middle School.

3. To complete the capacity calculations, the "TOTAL FUNCTIONAL CAPACITY" from the Non-departmentalized Elementary School Worksheet must be added to the "TOTAL FUNCTIONAL CAPACITY" from the Middle School Worksheet. Both forms must be submitted.
4. Complete the ANCILLARY AREAS sheet for areas which have no pupil capacity.

Middle School:

1. A "middle school" is defined as a school in which any of grades 5 through 8 are housed and the program is departmentalized.
2. Complete the form for the Middle School, filling in all areas appropriate to the local program.
3. Each of the three sub-totals must be multiplied by the appropriate utilization factor before adding to obtain the total functional capacity
4. Complete the ANCILLARY AREAS sheet for areas which have no pupil capacity.

Secondary School:

1. A "secondary school" is defined as any school in which any combination of grades 7 through 12 (including ninth grade) are housed. The term "secondary school" shall also include all vocational trade schools that are comprised of the appropriate levels.
2. Complete the form for the Secondary School, filling in all areas appropriate to the local program.
3. Each of the three sub-totals must be multiplied by the appropriate utilization factor before adding to obtain the total functional capacity.
4. Complete the ANCILLARY AREAS sheet for areas which have no pupil capacity.

NEW JERSEY DEPARTMENT OF EDUCATION - BUREAU OF SCHOOL PLANNING SERVICES

NON-DEPARTMENTALIZED ELEMENTARY SCHOOL BUILDING CAPACITY WORKSHEET

DISTRICT _____		SCHOOL _____		COUNTY _____		
GRADE LEVELS _____						
MAXIMUM ANTICIPATED ENROLLMENT _____						
I	II	III	IV	V	VII	
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Pre-Kindergarten						
3 yr. olds (one instructor)			80	800	10	
3 yr. olds (two instructors)			64	960	15	
4 yr. olds (one instructor)			71	850	12	
4 yr. olds (two instructors)			57	1,020	18	
Kindergarten			36	900	25 x 2	
Non-Departmentalized Grades						
first			32	800	@ 25	
second			32	800	@ 25	
third			32	800	@ 25	
fourth			28	700	@ 25	
fifth			28	700	@ 25	
sixth			28	700	@ 25	
seventh			28	700	@ 25	
eighth			28	700	@ 25	
Special Education (Refer to Special Education Worksheet and Instructions)						
						5

I		II	III	IV	V	VI	VII
Instructional Area		Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Open Space (@ 40 sq.ft. per pupil station)				40	*	*	
		TOTAL FUNCTIONAL CAPACITY					
		I	II	III	IV		
Instructional Area (No Capacity)		Number of Rooms		Square Feet Per Room		Minimum Acceptable Gross Area in Square Feet	
Multi-Purpose						2,400	
Cafeteria						Luncheon seating for 1/3 of maximum anticipated enrollment at 12 sq. ft. per pupil	
Music						1,000	
Industrial Arts						2,000	
Instructional Media Center (or Library)						2,500	
Gymnasium						3,500	
Art						1,000	
Science						1,000	
Home Economics						1,400	

NEW JERSEY DEPARTMENT OF EDUCATION - BUREAU OF SCHOOL PLANNING SERVICES

MIDDLE SCHOOL BUILDING CAPACITY WORKSHEET

DISTRICT		SCHOOL		COUNTY		
GRADE LEVELS		MAXIMUM ANTICIPATED ENROLLMENT				
I	II	III	IV	V	VI	VII
Instructional Area	Number Of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Academic Classrooms			28	700	25	
Art			50	1,200	24	
Arts and Crafts			58	1,400	24	
Business Education						
Typing			31	1,100	35	
Health & Safety Education			32	800	25	
Home Economics						
Clothing			56	1,350	24	
Foods			56	1,350	24	
Combination			83	2,000	24	
Industrial Arts						
General Wood			94	2,250	24	
General Metals			88	2,100	24	
Comprehensive General			117	2,800	24	
					24	
					24	
Learning or Language Lab.			33	1,000	30	7

I	II	III	IV	V	VI	VII
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Music						
Instrumental			35	1,400	40	
Vocal			30	1,200	40	
Physical Education						
Two-Station Gym			90	7,200	80	
One-Station Gym			90	3,600	40	
Auxiliary Gym			80	1,600	20	
Swimming Pool- Instruction			100	4,000	40	
Science Laboratory			50	1,200	24	
Special Education (Refer to Special Education Worksheet & Instructions)						
Other Scheduled Instructional Areas (Excluding Large Group, Small Group, IMC, and Cafeteria)						
Open Space (@ 40 sq.ft. per pupil station)			40	*	*	

Sub Total
Utilization Factor
(A) Sub Total Functional
Capacity

x .85

I	II	III	IV	V	VI	VII
Instructional Area	Number Of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Large Group Instructional Areas - including auditoriums (Instructional pupil stations are cal- culated @ 9 sq. ft. per pupil in seating area or designed seating capacity)			9	1,500		
Small Group Instructional Areas - (Instructional pupil stations cal- culated at 20 sq. ft. per pupil)			20	150		
Cafeteria (Instructional pupil stations are calculated at 30 sq. ft. per pupil)			30	Luncheon seating for 1/3 of max- imum anticipated enrollment @ 12 sq. ft./pupil		
Sub Total Utilization Factor (B) Sub Total Functional Capacity						x .25

I	II	III	VI	V	VI	VII
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Instructional Media Center -- Library (Pupil Stations are calculated at 40 sq. ft. per pupil)			40	Seating for 15% of maximum anticipated enrollment @ 40 sq.ft. per pupil		
Sub Total Utilization Factor (C) Sub Total Functional Capacity					X	.50

TOTAL FUNCTIONAL CAPACITY
(Add lines A, B and C)

1800

NEW JERSEY DEPARTMENT OF EDUCATION - BUREAU OF SCHOOL PLANNING SERVICES

SECONDARY SCHOOL BUILDING CAPACITY WORKSHEET

DISTRICT	SCHOOL	COUNTY				
GRADE LEVELS	MAXIMUM ANTICIPATED ENROLLMENT					
I	II	III				
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	IV Minimum Acceptable Sq. Ft. Per Pupil	V Minimum Acceptable Gross Area in Square Feet	VI Pupil Stations	VII Total Pupil Stations
Academic Classroom			26	650	25	
Art			58	1,400	24	
Arts and Crafts			67	1,600	24	
Business Education						
Bookkeeping			27	800	30	
Office Machines/EDP			50	1,200	24	
Distributive Education			70	1,400	20	
Office Practice			50	1,200	24	
Typing			31	1,100	35	
Shorthand			27	800	30	
Driver Education			42	1,000	24	
Health and Safety			32	800	25	
Home Economics						
Clothing			56	1,350	24	
Family Living			50	1,200	24	
Foods			56	1,350	24	
Combination			83	2,000	24	
						11

I	II	III	IV	V	VI	VII
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Industrial Arts						
Comprehensive General			142	3,400	24	
Electric-Electronics			94	2,250	24	
General Metal			119	2,850	24	
Graphic Arts			119	2,850	24	
Power-Automotive			133	3,200	24	
Wood			123	2,950	24	
Drafting			56	1,350	24	
Learning or Language Lab.			33	1,000	30	
Music						
Instrumental			35	1,400	40	
Vocal			30	1,200	40	
Physical Education						
2 Station Main Gym			125	10,000	80	
1 Station Main Gym			125	5,000	40	
Auxiliary Gymnasium			80	1,600	20	
Swimming Pool-Instructional			100	4,000	40	
Science Laboratories			58	1,400	24	
Special Education (Refer to Special Education Worksheet and Instructions)						

I	II	III	IV	V	VI	VII
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Vocational Laboratories (Refer to Vocational Laboratories Worksheet and Instructions)						
Other Scheduled Instructional Areas - (Excluding Large Group, Small Group, IMC and Cafeteria)						
Open Space (@ 40 sq. ft. per pupil station)			40	*	*	
			75% for schools under 900 pupils)	SUB TOTAL		x. <div></div>
			80% for schools 900-2,200 pupils)	UTILIZATION FACTOR		
			85% for schools over 2,200 pupils)	(A) SUB TOTAL FUNCTIONAL CAPACITY		
Large Group Instructional Areas - including auditoriums (Instructional pupil stations are calculated at 9 square feet per pupil in seating area or designed seating capacity)						
			9	1,500		

I	II	III	IV	V	VI	VII
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Small Group Instructional Areas (Pupil stations calculated at 20 square feet per pupil)	_____	_____	20	150	_____	_____
Cafeteria (Instructional pupil stations are calculated at 30 sq. ft. per pupil)	_____	_____	30	Luncheon seating for 1/3 of maximum anticipated enrollment at 12 sq. ft. per pupil	_____	_____

SUB TOTAL
UTILIZATION FACTOR $\times .25$
(B) SUB TOTAL FUNCTIONAL CAPACITY

Instructional Media Center
--Library (Pupil stations are calculated at 40 sq. ft. per pupil)

Seating for 20 percent of maximum anticipated enrollment at 40 sq. ft. per pupil

40

SUB TOTAL
UTILIZATION FACTOR $\times .50$
(C) SUB TOTAL FUNCTIONAL CAPACITY

(Add Lines A, B and C)

TOTAL FUNCTIONAL CAPACITY

NEW JERSEY DEPARTMENT OF EDUCATION - BUREAU OF SCHOOL PLANNING SERVICES

VOCATIONAL LABORATORIES CAPACITY WORKSHEET
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DISTRICT	SCHOOL	COUNTY	GRADE LEVELS				
I	II	III	IV	V	VI	VII	
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations	
Agriculture			170	3,400	20		
General-1 instructor within school, farm building shop and class lab.			170	3,400	20		
General-1-2 instructor shop, separate bldg. class lab.			232	4,650	20		
General-2 instructors shop and class lab			132	5,300	40		
Dental Assistant			85	1,700	20		
Medical Assistant			85	1,700	20		
Practical Nursing			90	1,800	20		
Child Care			112	2,240	20		
Clothing & Fashion Career			90	1,800	20		
Food Services			100	2,000	20		
Hotel-Motel Career			90	1,800	20		
Carpentry			150	3,000	20		
Commercial Foods			85	1,700	20		

I	II'	III	IV	V	VI	VII
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Cosmetology	_____	_____	105	2,100	20	_____
Drafting	_____	_____	75	1,500	20	_____
Electrical Trades	_____	_____	120	2,400	20	_____
Electronics (Radio & TV)	_____	_____	110	2,200	20	_____
Machine Shop	_____	_____	160	3,200	20	_____
Air Cond., Heating and Ventilating	_____	_____	120	2,400	20	_____
Appliance Repair	_____	_____	130	2,600	20	_____
Auto Body & Fender	_____	_____	180	3,600	20	_____
Auto Mechanics	_____	_____	210	4,200	20	_____
Baking	_____	_____	120	2,400	20	_____
Building Maintenance	_____	_____	110	2,200	20	_____
Cabinet Making & Millwork	_____	_____	140	2,800	20	_____
Needle Trades	_____	_____	90	1,800	20	_____
Plumbing & Pipe Fitting	_____	_____	120	2,400	20	_____
Printing	_____	_____	165	3,300	20	_____
Welding	_____	_____	120	2,400	20	_____
Recitation & Lecture Labs	_____	_____	58	1,150	20	_____
Mathematic Lab	_____	_____	78	1,550	20	_____
Technical Science & Material Testing Lab	_____	_____	115	2,300	20	_____

I	II	III	IV	V	VI	VII
Instructional Area	Number Of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations
Physics Lab	_____	_____	105	2,100	20	_____
Data Processing Technology	_____	_____	135	2,700	20	_____
Instrumentation Technology	_____	_____	135	2,700	20	_____
Drafting & Design Technology	_____	_____	115	2,300	20	_____
Chemical Technology Lab	_____	_____	100	2,000	20	_____
Chemical Technology Analytical Lab	_____	_____	165	3,300	20	_____
Chemical Technology Unit Operation Lab	_____	_____	98	1,950	20	_____
Chemical Technology Lecture & Demonstration Room	_____	_____	100	2,000	20	_____
Electronic Technology - Basic Electronics	_____	_____	73	1,450	20	_____
Electronic Technology - Advanced Electronics	_____	_____	103	2,050	20	_____
Electrical Technology - Power Laboratories	_____	_____	88	1,750	20	_____
Civil Technology	_____	_____	248	4,950	20	_____
Other Vocational Laboratories Specify	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

NEW JERSEY DEPARTMENT OF EDUCATION - BUREAU OF SCHOOL PLANNING SERVICES

SPECIAL EDUCATION CAPACITY WORKSHEET

DISTRICT	SCHOOL	COUNTY	GRADE LEVELS				
I	II	III	IV	V	VI	VII	
Instructional Area	Number of Teaching Stations	Square Feet Per Teaching Station	Minimum Acceptable Sq. Ft. Per Pupil	Minimum Acceptable Gross Area in Square Feet	Pupil Stations	Total Pupil Stations	
Auditory Handicapped			105	840	8		
Chronically ill			80	1,200	15		
Communication Handicapped			84	840	10		
Emotionally Disturbed			150	1,200	8		
General Orthopedic			80	1,200	15		
Mentally Retarded Educable Trainable			64 120	960 1,200	15 10		
Multiple Handicapped			150	1,200	8		
Neurologically or Perceptually Impaired			120	960	8		
Socially Maladjusted			88	1,050	12		
Visually Handicapped			150	1,200	8		

* It is well to realize that many children may overlap from one category to another and it is possible to find some confined to wheelchairs in any of these areas.

ANCILLARY AREAS (NO CAPACITY)

	Number of Rooms	Square Feet Per Room
Administrative Suite		
Assistant Principal's Office		
Conference Room		
Intercom or Public Address Room		
Principal's Office		
Reception		
Secretarial Area		
Storage		
Vault		
Workroom		
Animal Rooms		
Departmental Suites or Offices		
Faculty Dining room for _____ Faculty Members		
Faculty Offices and Workrooms		
Greenhouse		
Guidance Suite		
Conference Room		
Counselors		
Director's Office		
Reception		
Storage		
Gym Locker Shower Rooms		
Health Suite		
Cot Rooms		
Examination Room		
Nurse's Office		
Toilet Room		
Waiting		
I.M.C./ Library		
Audio-Visual/Media Center		
Instructional Television		

	Number of Rooms	Square Feet Per Room
Microfilm Reader-Printer Areas		
Office		
Periodical Storage		
Recording Studio-Audio		
Storage		
Viewing and Listening Room		
Workroom		
Kitchen		
Music Practice Rooms		
Special Service Suites		
Conference Rooms		
Director's Office		
Learning Disability Specialists Offices		
Observation Rooms		
Other Offices		
Psychologists Offices		
Social Workers Offices		
Storage		
Storage Areas (miscellaneous)		
Student Lounge and Activities Rooms		
Student Store		
Other Spaces		